

SOFT TISSUE AUGMENTATION BY FACIAL FAT GRAFTING: FROM SURGERY TO REGENERATION

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The use of adipose tissue transfer was reported for the first time at the end of the 19th century and since then has been the subject of numerous studies.

Grafted fat tissue has been used for years as an excellent filler for facial enhancement and recontouring. In 1988 the American plastic surgeon Sydney R. Coleman developed a new technique christened as LipoStructure[®], which allows the fat to be harvested and injected with minimal risk of necrosis and reabsorption.

In recent years indications have evolved into cranio-orbito maxillofacial volumetric restorations.

The aim of this speech is to give an overview on the use of Fat Grafting in the field of cranio maxillofacial surgery, giving technical surgical details as well as the most common tricks and traps, and an update on new trends and future perspectives.

The participants will be updated on the following topics: historical review, basic principles, clinical applications, planning, surgical technique, harvesting, injection, clinical results, complications, state of the art and future directions.

The authors will also report their experience from 2002 to 2015 (13 years) in treating patients affected by different facial defects: burn sequelae, post-traumatic, congenital complex orbito craniofacial deformities, post-tumour resection, scar tissue, facial atrophy such as Parry Romberg syndrome, scleroderma, orthognathic surgery and aesthetics as well.

Different techniques have been described for processing the harvested fat: decantation, filtration and centrifugation. The Author's adopted protocol is the centrifugation at 1300 rpm for 3 minutes. This allows the condensation of the harvested fat eliminating unnecessary components such as water, oil and cellular debris and to create a gradient of concentration of ASCs (Adipose- derived Stem Cells). In this way the best quality of available fat is obtained.

Recent international studies and researches have proven that human adipose tissue represents a rich source of mesenchymal stem cells.

ASCs remain an important source of multipotent cells, with their abundance and ease of access making ASCs a popular choice in modern tissue engineering strategies. Evidence exists that stem cells contribute to the restoration of tissue vascularisation, neo-angiogenesis and regeneration. For these reasons, adipose tissue transfer represents a tremendous potential tool for clinical use in soft tissue facial augmentation and restoration, even if further studies are needed to confirm the benefit of the full regenerative potential of ASCs.